

# A Revision of the Eastern Pacific Ovulidae

BY

CRAWFORD N. CATE

12719 San Vicente Boulevard, Los Angeles, California 90049

(Plates 7 to 10; 3 Maps)

## INTRODUCTION

RECENTLY I WAS ASKED to identify some *Simnia* from the Gulf of California. During the identification of these species, much confusion was noted and it seemed that some attempt to clarify the nomenclatural status of them would be desirable. In examining the shells in private collections and West Coast Museums I observed that many remained unidentified while others were incorrectly identified. In consulting the literature it soon became obvious that little work had been done with these shells in recent years, and what had been accomplished earlier gave no clear indication of the essential differences existing between the species. An attempt will be made here to show how the shells of this group of species are distinctly separable from one another; the names of those that do not meet this requirement will be relegated to synonymy.

A part of the eastern Pacific Ovulidae comprise a group of 10 species assigned to 3 genera: *Jenneria*, *Simnia*, and *Cyphoma*. An attempt will be made here to identify the species by means of specific morphological and color characteristics, employing the nomenclature proposed by SCHILDER (1968); the species are illustrated and a limited locality list is provided to show the ranges of the species within the prescribed area and the manner in which some of these ranges overlap.

## DISCUSSION

In the two west American species, *Simnia loebbeckeana* (WEINKAUFF, 1881) and *S. catalinensis* (BERRY, 1916), the shells are, with few variations, ivory colored; in *Cyphoma emarginata* (SOWERBY, 1830) the shell is consistently off-white in color. In the other 7 species, however, color is a basis for confusion, particularly where the shell assumes the color of the host gorgonian upon which the species lives; these colors may vary from white to an intense deep purple-brown. There is one exception among

them, however; in *S. aequalis* (SOWERBY, 1832), the yellow color on white shells, and yellow-orange on the tinted specimens, constitutes a major point in the identification of the species.

Some of the animals in *Simnia*, although having apparently identical shells, seem to vary in the color of the soft parts. It is generally assumed that simniids often take on the color of the gorgonians on which they live.

In the sub-group Cyproglobinini SCHILDER, 1932, there is one accepted genus: *Jenneria* JOUSSEAUME, 1884. In the sub-group Simniini SCHILDER, 1927, there are two accepted genera: *Simnia* RISSO, 1826, and *Cyphoma* RÖDING, 1798. *Neosimnia* FISCHER, 1884, has been relegated to synonymy with *Simnia* (SCHILDER, 1968, p. 271) and therefore will not be used in this report.

## GENERIC KEY

Cyproglobinini: Shells cypraea-form; surface finely striate; dorsum nodulate ..... *Jenneria*

Simniini: Shells elongate; terminals usually short (shorter than in *Volva* RÖDING, 1798); anterior aperture less constricted, or not at all; transverse carina on dorsum absent. Outer lip narrow or sharply edged, inflected or reflected; with or without fossula ..... *Simnia*

Shell long, wide; terminals broad, rounded or subsquare; shell thickly, solidly constructed; central dorsal carina prominently elevated; a funicular, carinal twist on the adapical surface of the columella may be present

..... *Cyphoma*  
(*Jenneria* and *Cyphoma* include but a single species each in the area covered by this report.)

## KEY TO THE SPECIES OF *Simnia*

Smooth, glossy, without dorsal sculpture ..... *loebbeckeana*  
White, sharply upraised columellar carina along entire length of shell ..... *rufa*

- Dorsal sculpture of upraised transverse ridges covering entire upper shell surface ..... *avena*
- Dorsal surface only partially sculptured with transverse ridges emanating from both terminals ..... *catalinensis*
- Transverse ridges emanate restrictedly from each terminal; yellow terminals on white shells, orange terminals on colored shells; columellar carina weakly, finely formed ..... *aequalis aequalis*
- Transverse ridges emanating from each terminal; yellow to orange terminal tips; pronounced, upraised, white carina on forward half of columella ..... *aequalis vidleri*
- Transverse ridges emanating away from each terminal, and yellow terminal tips; shell broader, with a wider curving carina on the forward half of the columella ..... *bellamaris*
19. Dominica, West Indies; Monte Christi Beach
  20. Estero Soldado, Guaymas, Sonora, Mexico
  21. Galápagos Islands, Ecuador
  22. Guaymas, Sonora, Mexico
  23. Key Largo, Florida Keys, Florida
  24. La Abreojos, W Baja California del Sur, approx. 26°40' N Lat.; 113°35' W Long.
  25. Laguna Beach, Orange County, California; in 40 to 50 feet of water
  26. Las Gaviotas, Mazatlán, Sinaloa, Mexico
  27. Magdalena Bay, SW Baja California del Sur
  28. Manzanillo, Colima, Mexico
  29. *ibid.*; El Dorado Bay
  30. Mazatlán, Sinaloa, Mexico
  31. Mission Bay, San Diego, California
  32. Monterey Bay, Monterey, California
  33. Morro Bay, Pismo Beach, California; in 80 feet of water
  34. Newport Beach, California
  35. *ibid.*; off breakwater in 20 - 25 feet of water
  36. Ocean Park, California, adjacent to Venice: 5 miles W in 300 feet of water (J. L. Baxter)
  37. Pajaros, Mazatlán, Sinaloa, Mexico
  38. Panama Bay, Pacific Panama, W Central America
  39. Panama City, Panama; in deep water
  40. Perlas Islands, Panama Bay
  41. Playa del Rey, California; in 180 feet of water
  42. Punta Diggs (Punta Estrella), E Baja California del Norte; approx. 6 miles S of San Felipe
  43. Point Fermin, San Pedro, California
  44. Puertecitos, E Baja California del Norte; approx. 75 miles S of San Felipe
  45. Puerto Escondido, E Baja California del Sur; 11 miles S of Loreto
  46. Pulmo Reef, SE Baja California del Sur; approx. 70 miles S of La Paz
  47. Punta Cameron, Mazatlán, Sinaloa, Mexico
  48. Punta Peñasco (Cholla Bay), Sonora, Mexico
  49. Punta San Ignacio, Punta Peñasco, Sonora, Mexico
  50. Redondo Beach, California; in 100 feet of water (R. Mistrell)
  51. Santa Barbara, California
  52. Santa Cruz, Nayarit, Mexico; 15 miles S of San Blas
  53. San Carlos Bay, Guaymas, Sonora, Mexico; dredged in 17 fathoms
  54. San Diego Bay, San Diego, California; entrance
  55. San Felipe, E. Baja California del Norte
  56. San Francisco Bay, Guaymas, Sonora, Mexico
  57. *ibid.*; dredged from 16 fathoms
  58. San Onofre, California; approx. 18 miles N of Ocean-side (C. C. Finlay)
  59. San Pedro, California (Mrs. L. C. Oldroyd)

## LOCALITY INDEX

Many of the localities listed here were obtained from handwritten labels in various collections. Every effort has been made to verify the spellings, but in some instances certain place-names were not found on any map or atlas available to me; it is regretted if any discrepancies occur.

1. Aguachale, NE Baja California del Norte; approx. 24 miles S of San Felipe
2. *ibid.*; in 5 feet of water
3. *ibid.*; 2 miles S of -
4. Albarle Island (= Isabella Island), Galápagos Islands, Ecuador
5. Avalon, Catalina Island, S. California; in 40 fathoms
6. Bahía de Adair, Sonora, West Mexico; approx. 20 miles N of Punta Peñasco
7. Baja Isla Grande (= Tiburon Island), Gulf of California
8. Bird Island, Catalina Island, S. California; in 35 to 40 feet of water
9. Calito de Campos, Michoacan, Mexico; N of Acapulco
10. Calito Mero, Peru
11. Carpinteria, California; deep water
12. Catalina Island, California; approx. 22 miles W of San Pedro
13. *ibid.*; at the Isthmus in 35 feet of water
14. Cerralvo Island, SE Baja California; just E of La Paz
15. Concepción Bay, E Baja California del Sur; just S of Mulege
16. Corona del Mar, California; just S of Newport Beach
17. Creston Island, Mazatlán, Sinaloa, Mexico; in 25 feet of water, on gorgonians
18. Deer Island, Guaymas, Sonora, Mexico; in deep water



Figure 1

*Simnia rufa* (SOWERBY 2<sup>nd</sup>, 1832)  
Pulmo Reef  $\times 3$



Figure 2

*Simnia rufa* var. *inflexa* (SOWERBY 2<sup>nd</sup>, 1832)  
Estero Soldado  $\times 3\frac{1}{2}$



Figure 3

*Simnia aequalis aequalis* (SOWERBY 2<sup>nd</sup>, 1832)  
Point Diggs  $\times 2\frac{2}{3}$



Figure 4

*Simnia aequalis vidleri* (SOWERBY 3<sup>rd</sup>, 1881)  
Morro Bay  $\times 2\frac{1}{2}$



Figure 5

*Simnia avena* (SOWERBY 2<sup>nd</sup>, 1832)  
Creston Island  $\times 5$



Figure 6

*Simnia bellamaris* (BERRY, 1946)  
San Diego Bay  $\times 3$







60. *ibid.*; off breakwater  
 61. Santa Monica, California;  $4\frac{1}{2}$  miles W of (J. L. Baxter)  
 62. Santa Rosalia, E Baja California del Sur  
 63. Saladita Bay, Guaymas, Sonora, Mexico  
 64. Tabago Island, Honda Bay in Panama Bay; 12 miles SW of Panama  
 65. Venado Beach, Panama, Central America  
 66. Venado Island, Panama, Central America

*Jenneria pustulata* (LIGHTFOOT, 1786)

Cat. Portland Mus., London 1786 (2230):  
 106 — (not of SOLANDER, 1786; nor  
 LAMARCK, 1810)

(Plate 8, Figure 9)

Type Locality here designated: Cholla Bay, Punta Peñasco, Sonora, Mexico ( $30^{\circ}40' N$  Lat.,  $113^{\circ}20' W$  Long.)

(emend. China: Lister error; LIGHTFOOT, 1786)

This is a fairly common species in some localities; it ranges from the upper Gulf of California south to Ecuador (KEEN, 1958). It has been demonstrated that the species is most closely related to the Ovulidae (see D'ASARO, 1969), and it is therefore included in this report. The shell shape of *Jenneria pustulata* is that of a cypræid; the apertural teeth traverse both base and outer lip as sharply elevated white ridges; the pale grey dorsum is divided by a mantle line, and the overall dorsal surface is thickly overlaid with bright orange pustules, which are encircled by a brown ring — there are two large brown spots superimposed over the area inward from each terminal. The shells average about 20 by 12.5 by 8.2 mm in length, width, and height, respectively. Those specimens that I have seen live in the sand, digging into it with the receding tide, at Cholla Bay.

Localities: 2 3 22 26 29 38 44 45 52 65

*Simnia rufa* (SOWERBY<sup>n</sup>, 1832)

Conch. Illust., London: fig. 58

(Plate 7, Figures 1, 2; Plate 9, Figures 13, 14)

Syn.: *Ovulum inflexum* SOWERBY<sup>n</sup>, 1832

Conch. Illust., London, fig. 60

*Ovula californica* REEVE, 1865 (SOWERBY MS)

Conch. Icon., 15 *Ovulum*, fig. 50

*Ovula neglecta* REEVE, 1865

Conch. Icon., 15 *Ovulum*, fig. 62

This is a fairly common, distinctive species. It differs from other members of the genus by having a generally narrower shell; by being rectangularly elongate; by having

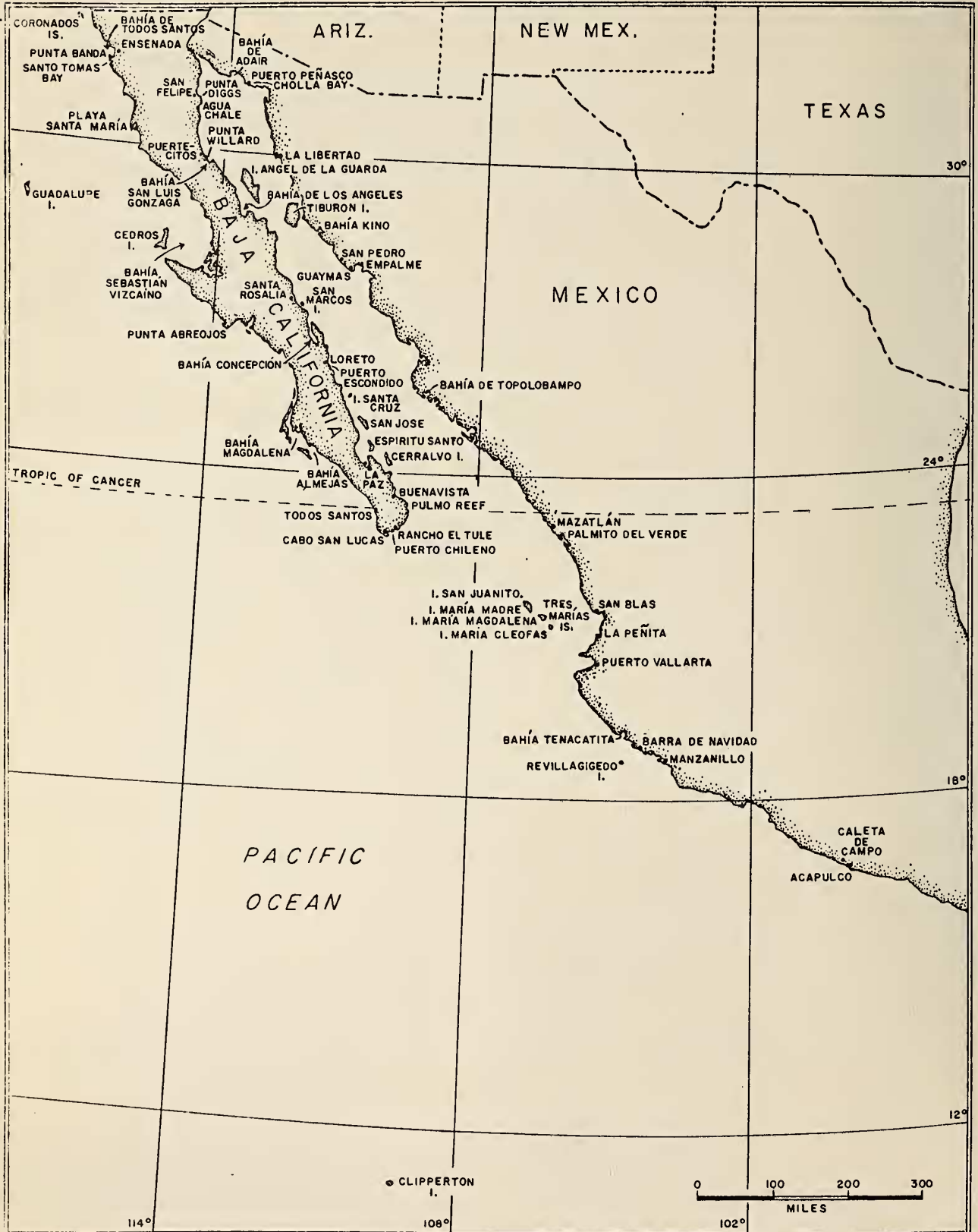




Figure 7

*Simnia loebbeckeana* (WEINKAUFF, 1881)  
Magdalena Bay  $\times 2\frac{1}{2}$



Figure 8

*Simnia catalinensis* (BERRY, 1916)  
Avalon  $\times 2\frac{1}{4}$

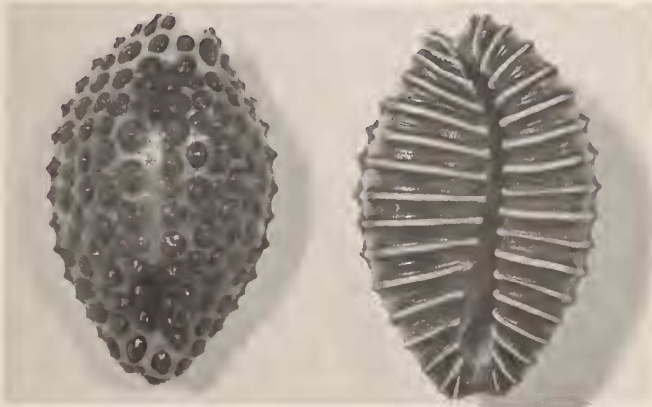


Figure 9

*Jenneria pustulata* (LIGHTFOOT, 1786)  
Puertecitos  $\times 2\frac{2}{3}$

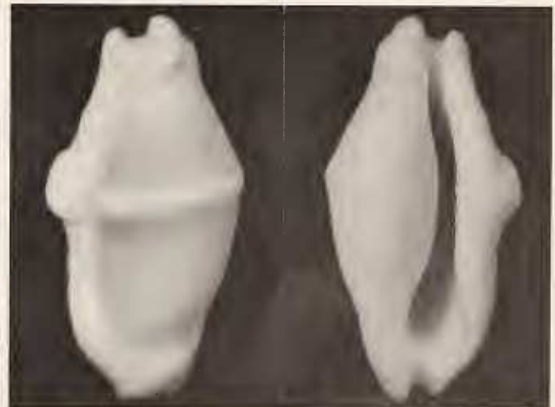


Figure 10

*Cyphoma emarginata* (SOWERBY 1<sup>st</sup>, 1830)  
Puertecitos  $\times 2\frac{1}{2}$



Figure 11

*Cyphoma intermedia* (SOWERBY 1<sup>st</sup>, 1828)  
Dominica  $\times 1\frac{2}{3}$



Figure 12

*Cyphoma gibbosa* (LINNAEUS, 1758)  
Key Largo  $\times 2$

